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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,445	08/30/2001	Toshimichi Kurihara	14872	7920

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EXAMINER

BEREZNY, NEMA O

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 04/10/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,445

Applicant(s)

KURIHARA ET AL.

Examiner

Nema O Berezny

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 22, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 17, 18 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Switky et al. (5,270,262) in view of Thomas (5,828,126). Switky discloses a semiconductor device, comprising: a lead frame conductive member (Figs.1-3C el.13); a radiating plate (el.14) formed of a metal plate different from the lead frame; a semiconductor chip (el.16) bonded onto said radiating plate (col.4 lines 44-46); a resin wall (el.12,15) bonded at the lower end to the radiating plate, which retains the conductive member and surrounds the circumference of said chip (Fig.2); and a lid (el.11) bonded to the upper end of said resin wall, an inner lead portion of the conductive member being mounted on a base seat part formed as a part of the resin wall (Fig.2), wherein said chip is sealed in a space blocked by said plate, said wall and

said lid, and said conductive member electrically conducts the chip to the outside.

However, Switky does not disclose a resin lid.

Thomas discloses a similar structure wherein a chip is sealed within a cavity, including a resin lid (Fig.2b el.34; col.6 lines 30-37). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the resin lid of Thomas with the semiconductor device of Switky. Resin materials are impervious to moisture and resist corrosion, and therefore would protect the sealed device better than a metal cover. In addition, the metal lid of Switky does not appear to be functioning as an electrical or thermal conductor for the device, and therefore a resin lid would not appear to have any disadvantages to the device of Switky.

Switky also discloses a resin wall that fits to protruding and recessed parts on the radiating plate (Fig.2), wherein the recessed parts are on opposing sides of the radiating plate, and the protruding parts are on the inner surfaces of the recessed parts, and the lower end part of the resin wall is buried in the recessed parts (Fig.3B). Switky also discloses first holes in the outside positions of the resin wall on the conductive member, and second holes in the region extending through the resin wall of the conductive member (Figs.8,9; col.7 lines 19-34), wherein the first holes overlap the space area between the second holes (Figs.8,9). Switky also discloses a stepped part on the lid which is to be fitted to the inner periphery of the resin wall (Fig.2), and a lid that has a vertically plane symmetric shape (Fig.2).

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Switky in view of Thomas as applied to claim 1 above, and further in view of James (6,396,133). Switky in view of Thomas do not disclose a radiating plate that has end portions formed integrally at both ends of a center portion of the radiating plate, the lower end of the resin wall bonded to said center portion, and said end portions exposed through the resin wall. However, James discloses a radiating plate that has end portions formed integrally at both ends of a center portion of the radiating plate, the lower end of the resin wall bonded to said center portion, and said end portions exposed through the resin wall (Figs.3-5 el.44). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the radiating plate of James with the semiconductor device of Switky and Thomas. A radiating plate that is exposed outside of the resin wall would radiate more heat away from the device.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Switky in view of Thomas as applied to claims 1-16 above, and further in view of ElHatem et al. (5,739,582). Switky in view of Thomas do not disclose a conductive member that is broader on the inside of the resin wall. However, ElHatem discloses conductive lead members that are broader on the inner lead portions, which would be located inside of the resin wall (Fig.2). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the broad inner leads of ElHatem with the semiconductor device of Switky and Thomas. A broader inner lead

would result in a shorter bonding wire since said wire could be attached to the nearest point on the broad inner lead.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter for claims 17-18. The prior art of record does not teach or disclose a radiating plate that comprises a silver plated surface finish that adjoins the resin wall, and a gold plated surface finish elsewhere on the radiating plate, as well as gold plated conductive members, in addition to the elements of claims 1 and 2.

Ellenberger et al. (4,925,024) discloses gold plated leads of a lead frame only (col.3 lines 54-63). Otsuki et al. (5,653,891) discloses a heat sink that is silver plated everywhere, except where it is adjoined to a resin surface (col.12 lines 35-51).

The following is a statement of reasons for the indication of allowable subject matter for claim 23: the prior art of record does not teach or disclose a radiating plate that has end portions formed integrally at both ends of a center portion of the radiating plate, the lower end of the resin wall bonded to said center portion, and said end portions exposed through the resin wall, in addition to the elements of claim 2.

James (6,396,133) discloses said radiating plate (Figs.3-5 el.44), except said radiating plate is not made of a metal plate different from the lead frame. The radiating plate of James is an extended die pad, which is part of the lead frame (col.4 lines 1-12).

Claims 17-18 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 1-28-03, regarding claims 1-16 have been fully considered but they are not persuasive. Applicant contends that Switky does not disclose an inner lead portion of the conductive member being mounted on a base seat part of the resin wall. Examiner disagrees. As shown in Fig.2, the major portion of the inner lead is resting on the base seat part of the resin wall (el.12,15).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the conductive member in Switky fails to disclose any holes or any other means for preventing melting solder or other liquid from reaching the resin wall or inner package) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (703) 305-3445. The examiner can normally be reached on M-F 8:30-5:00.

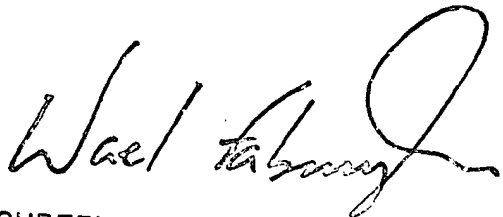
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Application/Control Number: 09/942,445
Art Unit: 2813

Page 8

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

NB
April 7, 2003


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